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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,523	08/25/2003	Naiyong Jing	56210US004	2281
32692	7590	03/10/2005	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427				ZACHARIA, RAMSEY E
ART UNIT		PAPER NUMBER		
		1773		

DATE MAILED: 03/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/647,523	JING ET AL.
	Examiner	Art Unit
	Ramsey Zacharia	1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 28 December 2004.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-19 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 25 August 2003 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 28 December 2004 has been entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 112***

3. Claim 18 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection. No support could be found in the disclosure as originally filed for the limitation that the fluoropolymer surface is "substantially free of fluorosurfactant." The courts have held that the addition of a negative limitation which did not appear in the disclosure as originally filed introduces a new concept and violates the description requirement of 35 U.S.C. 112. *Ex parte Grasselli* 231 USPQ 393.

4. Claims 1-17 and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Claims 1-17 and 19 recite two limitations that are seemingly incompatible with one another. The claims require: (1) that the surface of the fluoropolymer is bonded directly to the surface of the substrate, and (2) that a bonding composition be interposed between the surface of the fluoropolymer and the surface of the substrate. If a bonding composition is interposed between the two surfaces, then the fluoropolymer surface will not be bonded directly to the substrate surface. Rather, the fluoropolymer surface will be bonded to the bonding composition which in turn will be bonded to the substrate surface. Alternatively, if the fluoropolymer surface is directly bonded to the substrate surface, then nothing can be interposed between the two surfaces.

*Claim Language*

6. For the purpose of examination, the phrase "surface of the fluoropolymer is bonded directly to the surface of the substrate" is taken to mean that the surfaces of both the fluoropolymer and the substrate are in direct contact with the bonding composition.

*Claim Rejections - 35 USC § 102*

7. Claims 1, 3, 6-8, 13, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Stoeppelmann (U.S. Patent 5,869,157).

Stoeppelmann teaches an article comprising a fluoropolymer layer, a polyamide layer, and a layer of an adhesion promoter (column 2, lines 33-50). The adhesion promoter comprises a polyamide and a diamine that may be a substituted or unsubstituted aliphatic diamine (column 2, lines 53-65). The diamine corresponds to the electron donor of the instant claims. The polyamide corresponds to the light-absorbing compound since it is capable of absorbing at least some light and the claims do not require a degree of absorption or wavelength(s) at which the absorption occurs. The fluoropolymer is a polymer comprising vinylidene fluoride, i.e. it is partially fluorinated (column 4, lines 27-30). In the embodiments of Examples 3 and 4, both the fluoropolymer and the polyamide layers are in direct contact with the adhesion promoter.

8. Claims 1-4, 6, and 12-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Nishii et al. (U.S. Patent 5,470,617).

Nishii et al. teach modifying the surface of a fluoropolymer by irradiating the surface in the presence of a UV-absorbing compound and a fluorosurfactant to improve adhesion (column 2, lines 15-30). The fluoropolymer may be perfluorinated or partially fluorinated (column 2, lines 35-47). The UV-absorbing compound may be an aromatic amine, i.e. an electron donor (column 2, lines 54-60). The fluorosurfactant may be an ammonium compound (column 3, lines 50-60), which would read on the light-absorbing compound in the instant claims. The treated fluoropolymer may be adhered to other resins or inorganic materials (column 5, lines 54-67). In the embodiment of Example 1, the article comprises (in order): a fluoropolymer, the applied surface modifying composition, an epoxy layer, and a steel layer. The fluoropolymer reads on fluoropolymer having a surface, the applied surface modifying composition reads on the bonding

composition, and the epoxy and steel layers read on a substrate that is both in contact with the applied surface modifying composition and also includes metal. It is noted that the instant specification does not require the substrate to be monolithic but explicitly permits the substrate to be an organic-inorganic composite (see page 7, lines 22-24). Moreover, a substrate that "includes" an inorganic substrate encompasses an organic-inorganic composite substrate.

9. Claims 1, 3, 6, 7, 10, and 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Vasta (U.S. Patent 4,495,247).

Vasta teaches a primer composition that has excellent adhesion to a variety of substrates and to which fluoropolymer coating compositions will adhere (column 1, lines 24-28). The primer composition comprises a fluorocarbon polymer, a metallic oxide, a pigment, and an amino alkyl alkoxy silane (column 1, lines 30-41). The silane corresponds to the electron donor of the instant claims. The fluorocarbon polymer, metallic oxide, and/or pigment correspond(s) to the light-absorbing compound since they are all capable of absorbing at least some light and the claims do not require a degree of absorption or wavelength(s) at which the absorption occurs. The primer may be applied over a metal substrate (column 2, lines 56-61). In the embodiment of Example 1, a partially fluorinated polymer is used as the fluoropolymer coating and both the fluoropolymer and metal substrate are in contact with the primer layer (column 3, lines 46-63).

10. Claims 1, 3, 6, 8, 12, 14, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Tannenbaum (U.S. Patent 5,562,991).

Tannenbaum teaches a primer layer for a non-stick coating that comprises a polymeric binder, a fluoropolymer, and an inorganic filler (column 2, lines 38-44). The primer may be applied to inorganic substrates such as metal and glass (column 2, lines 61-67). The invention also includes a composite structure comprising the primer between the substrate surface and an overcoat of fluoropolymer (column 3, lines 8-12). In one formulation, the binder comprises polyamic acid, triethylene amine, and both black and blue pigments (column 7, lines 56-column 8, line 10). In addition to the amine, polyamic acid also comprises amine groups, therefore they all reads on the electron donor of the instant claims. Black and blue pigments are light absorbing compounds. The non-stick coating comprises PTFE and PFA (column 7, lines 45-55).

***Claim Rejections - 35 USC § 102 / 103***

11. Claims 18 and 19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Stoeppelmann (U.S. Patent 5,869,157).

Stoeppelmann teaches all the limitations of claims 18 and 19, as outlined above, except for the exposing the adhesion promoter to actinic radiation. However, this is a product-by-process type of limitation.

The determination of patentability for a product-by-process claim is based on the product itself and not on the method of production. If the product in the product-by-process claim is the same or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. Thus, when the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claim in a product-by-process claim, the burden is on the applicant to present evidence from which the

examiner could reasonably conclude that the claimed product differs in kind from those of the prior art. See MPEP § 2113. In this case, since the composition of the adhesion promoter reads on that of instant claims 18 and 19 (a combination of an electron donor and a light-absorbing compound), and it performs the same function (improving adhesion), the burden is on the applicant to demonstrate that the product of claim 18 differs from that of the prior art.

12. Claim 19 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Vasta (U.S. Patent 4,495,247).

Vasta teaches all the limitations of claim 19, as outlined above, except for the step of exposing the adhesion promoter to actinic radiation. However, this is a product-by-process type of limitation.

Since the determination of patentability for a product-by-process claim is based on the product itself and not on the method of production and since the product of Vasta appears to be the same as that of claim 19 (a combination of an electron donor and a light-absorbing compound that improves adhesion), the burden is on the applicant to demonstrate that the product of claim 19 differs from that of the prior art.

13. Claim 19 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Tannenbaum (U.S. Patent 5,562,991).

Tannenbaum teaches all the limitations of claim 19, as outlined above, except for the step of exposing the adhesion promoter to actinic radiation. However, this is a product-by-process type of limitation.

Since the determination of patentability for a product-by-process claim is based on the product itself and not on the method of production and since the product of Tannenbaum appears to be the same as that of claim 19 (a combination of an electron donor and a light-absorbing compound that improves adhesion), the burden is on the applicant to demonstrate that the product of claim 19 differs from that of the prior art.

***Claim Rejections - 35 USC § 103***

14. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stoepelmann (U.S. Patent 5,869,157).

Stoepelmann teaches an adhesion promoter that satisfies all the limitations of claim 9, as outlined above, except that the diamine is fluoroalkylamine.

However, Stoepelmann do teach that the diamine may be a substituted or unsubstituted aliphatic diamine and the composition is designed to promote adhesion to a fluorinated polymer.

One of ordinary skill in the art would be motivated to use a diamine having a fluorine substituted aliphatic group to further enhance adhesion by making the diamine more compatible with the fluoropolymer to which it is to be applied.

15. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stoepelmann (U.S. Patent 5,869,157) in view of Gillham et al. (U.S. Patent 3,309,425).

Stoepelmann teaches all the limitations of claim 5, as outlined above, except for the inclusion of a phosphonium compound into the adhesion promoting layer. However,

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Stoeppelmann do teach that a variety of additives, including flame retardants, may be added to the adhesion promoter composition (column 3, lines 51-55).

Gillham et al. teach phosphonium compounds that are used as flame retardants in thermoplastic resin systems (column 1, lines 10-34). The compounds may be added in relatively small amounts and do not crystallize or oil out of the polymer system to which they are added (column 1, lines 35-53).

One of ordinary skill in the art would be motivated to use a phosphonium compound described by Gillham et al. as the flame retardant because only a small amount is required and it will not crystallize or oil out of the polymer. Since the phosphonium compound would absorb light, it would read on a light-absorbing compound when added to the composition.

16. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tannenbaum (U.S. Patent 5,562,991) in view of Friedman et al. (U.S. Patent 5,908,704)

Tannenbaum teaches all the limitations of claim 11, as outlined above, except Tannenbaum does not include a vinyl silane in their primer composition. However, the primer is applied to glass and is designed to promote adhesion between the glass and a fluoropolymer.

Friedman et al. disclose the addition of a vinyl silane coupling agent to a fluoropolymer containing interlayer to improve the adhesion of the layer to a glass substrate (column 4, lines 35-48).

One of ordinary skill in the art would be motivated to add a vinyl silane to the primer composition of Tannenbaum to improve its adhesion to glass.

***Double Patenting***

17. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

18. Claim 18 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 29 of U.S. Patent No. 6,752,894. Although the conflicting claims are not identical, they are not patentably distinct from each other because the invention of instant claim 18 represents a genus of which the invention described by claim 29 of U.S. Patent No. 6,752,894 is a species. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993). The "inorganic photochemical electron donor" recited in claim 29 of U.S. Patent No. 6,752,894 is a species of the "electron donor" in instant claim 18. The "cationic assistant" is a species of the "light-absorbing compound" in instant claim 18, particularly in view of claim 31 of U.S. Patent No. 6,752,894 and the fact that, since instant claim 18 does not require a degree of absorption or wavelength(s) at which the absorption occurs, any compound will read on "light-absorbing compound" because any compound will absorb at least some light.

***Response to Arguments***

19. Applicants' arguments filed 28 December 2004 with respect to the rejections of claim 18 have been fully considered but they are not persuasive.

With respect to the rejection over 35 U.S.C. 112, 1<sup>st</sup> paragraph, the applicants cite *Ex parte Parks*, 30 USPQ2d 1234, 1236 (BdPatApp&Int 1993) to demonstrate that adequate description does not require literal support for the claimed invention, only that the original disclosure convey to one having ordinary skill in the art that an applicant had possession of the concept claimed. The applicants allege that instant application meets this standard because it describes specific examples in which a fluorosurfactant is not employed.

This is not persuasive for the following reasons. While literal support is not required to adequately describe an invention under the first paragraph of 35 U.S.C. 112, there is a requirement that the originally filed disclosure need to convey, to one skilled in the art, that the applicants had possession of the claimed concept. In *Ex parte Parks*, the court held that the claimed negative limitation was conveyed to one skilled in the art by the omission of reference to a catalyst in a discussion that would seem to cry out for a catalyst if one were used. Additionally, two declarations were present demonstrating that one skilled in the art would have recognized that the specific reaction equation disclosed in the original specification is conducted without a catalyst. These facts specific to the holding of adequate description for a negative limitation in *Ex parte Parks* are not analogous to the instant application. There is no discussion that is particularly notable for failing to mention a fluorosurfactant nor are there any equations and declarations demonstrating that one skilled in the art would have recognized that the specific surface coating composition used by the applicant cannot employ a fluorosurfactant. Since there

is nothing in the originally filed disclosure that would convey to one skilled in the art that applicants had possession of the concept of exposing the surface of a fluoropolymer substrate to a composition which is substantially free of fluorosurfactant, the rejection of claim 18 under 35 U.S.C. 112, 1<sup>st</sup> paragraph, is valid.

With respect to the product-by-process type rejection over 35 U.S.C. 102/103, the applicants argue that Stoepelmann does not teach a fluoropolymer substrate suitable for bonding directly to a polymeric substrate but rather to an intermediate layer that then bonds to the substrate.

This is not persuasive because the fluoropolymer and intermediate layers read on the treated fluoropolymer substrate as recited in claim 18, wherein the treatment is the application of the intermediate layer containing a combination of a light-absorbing compound (polyamide) and an electron donor (diamine). This treated fluoropolymer substrate is suitable for bonding directly to a polymeric substrate.

In response to the examiner's position that the exposure to actinic radiation represents a product-by-process limitation, the applicants cite Example 1 of the instant application illustrating that comparative experiments show no adhesion between substrates and fluoropolymer films prior to irradiation. However, this is not persuasive this evidence does not compare the closest prior art nor as evident by the fact that, unlike the comparison in instant Example 1, the fluoropolymer substrate of Stoepelmann does adhere to a polymeric substrate. Furthermore, the comparison does not appear to be commensurate in scope with the claims because the comparison is limited to one particular combination of a light-absorbing compound and an electron donor while claim 18 is open to a combination of any light absorbing compound and any

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electron donor. As demonstrated by Stoepelmann, some combinations of light absorbing compounds and electron donors are capable of treating a fluoropolymer such that fluoropolymer is suitable for bonding to a polymeric substrate.

***Conclusion***

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney, can be reached at (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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